



24024

PATENT TRADEMARK OFFICE

#7

Certificate of Mailing

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Typed or Printed Name of Person Signing this Certificate:

Wendy A. Frick

Signed: Wendy A. Frick

PATENT

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Galloway, et al.

Serial No.: 09/747,521

Filed: December 21, 2000

For: **METHODS FOR PROTECTION  
AGAINST LETHAL INFECTION  
WITH *BACILLUS ANTHRACIS***

Examiner: Not yet assigned

Group Art Unit: 1645

Attorney Docket No.: 22727/04079

Assistant Commissioner for Patents

Box Missing Parts

Washington, D.C. 20231

## STATEMENT REGARDING SEQUENCE LISTING

Dear Sir:

In response to the Notice to File Missing Parts mailed on March 6, 2001, Applicant submits herewith a paper copy of a Sequence Listing and a computer readable form (CRF) of the Sequence Listing for the above-described application as required by 37 C.F.R. 1.825(d). The Sequence Listing in the paper copy and the CRF are the same. The sequences contained in the Sequence Listing are found in the application as originally filed and thus, the Sequence Listing adds no new matter to the application.

Respectfully submitted,

Dated: April 24, 2001

Pamela A. Docherty  
Pamela A. Docherty, Reg. No. 40,561  
(216) 622-8416

FOI 2004-0460 "F092460"



## SEQUENCE LISTING

<110> Galloway, Darrel  
Mateczun, Alfred

<120> Methods for Protection Against Lethal Infection with Bacillus Anthracis

<130> 22727/04079

<140> 09/747,521

<141> 2000-12-21

<160> 8

<170> PatentIn version 3.0

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<211> 2430

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Val Thr Ala Ile Thr Leu Ser Gly Pro Val Phe Ile Pro Leu Val Gln

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ggg gcg ggc ggt cat ggt gat gta ggt atg cac gta aaa gag aaa gag  
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Gly Ala Gly Gly His Gly Asp Val Gly Met His Val Lys Glu Lys Glu

35 40 45

aaa aat aaa gat gag aat aag aga aaa gat gaa gaa cga aat aaa aca  
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65

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75

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288

Val Lys Gly Glu Glu Ala Val Lys Lys Glu Ala Ala Glu Lys Leu Leu

85

90

95

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336

Glu Lys Val Pro Ser Asp Val Leu Glu Met Tyr Lys Ala Ile Gly Gly

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105

110

aag ata tat att gtg gat ggt gat att aca aaa cat ata tct tta gaa  
384

Lys Ile Tyr Ile Val Asp Gly Asp Ile Thr Lys His Ile Ser Leu Glu

115

120

125

gca tta tct gaa gat aag aaa aaa ata aaa gac att tat ggg aaa gat  
432

Ala Leu Ser Glu Asp Lys Lys Lys Ile Lys Asp Ile Tyr Gly Lys Asp

130

135

140

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145

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155

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170

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180

185

190

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195

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225

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270

gct ttt aat tac atg gat aaa ttt aac gaa caa gaa ata aat cta tcc  
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275

280

285

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912

Leu Glu Glu Leu Lys Asp Gln Arg Met Leu Ser Arg Tyr Glu Lys Trp

290

295

300

gaa aag ata aaa cag cac tat caa cac tgg agc gat tct tta tct gaa  
960

Glu Lys Ile Lys Gln His Tyr Gln His Trp Ser Asp Ser Leu Ser Glu

305

310

315

320

gaa gga aga gga ctt tta aaa aag ctg cag att cct att gag cca aag  
1008

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325

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335

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350

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Lys Arg Ile Gln Ile Asp Ser Ser Asp Phe Leu Ser Thr Glu Glu Lys

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365

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370

375

380

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1200

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390

395

400

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1248

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410

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caa cca tat gat att aat caa agg ttg caa gat aca gga ggg tta att

1296

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1344

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445

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1392

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450

455

460

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1440

Tyr Asn Lys Ile Tyr Leu Tyr Glu Asn Met Asn Ile Asn Asn Leu Thr

465

470

475

480

gca acc cta ggt gcg gat tta gtt gat tcc act gat aat act aaa att

1488

Ala Thr Leu Gly Ala Asp Leu Val Asp Ser Thr Asp Asn Thr Lys Ile

485

490

495

aat aga ggt att ttc aat gaa ttc aaa aaa aat ttc aaa tat agt att  
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505

510

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Ser Ser Asn Tyr Met Ile Val Asp Ile Asn Glu Arg Pro Ala Leu Asp

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525

aat gag cgt ttg aaa tgg aga atc caa tta tca cca gat act cga gca  
1632

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535

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Gly Tyr Leu Glu Asn Gly Lys Leu Ile Leu Gln Arg Asn Ile Gly Leu

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555

560

gaa ata aag gat gta caa ata att aag caa tcc gaa aaa gaa tat ata  
1728

Glu Ile Lys Asp Val Gln Ile Ile Lys Gln Ser Glu Lys Glu Tyr Ile

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570

575

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1776

Arg Ile Asp Ala Lys Val Val Pro Lys Ser Lys Ile Asp Thr Lys Ile

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585

590

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 1872  
 Leu Pro Lys Tyr Thr Lys Leu Ile Thr Phe Asn Val His Asn Arg Tyr  
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 Ala Ser Asn Ile Val Glu Ser Ala Tyr Leu Ile Leu Asn Glu Trp Lys  
 625 630 635 640

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 Asn Asn Ile Gln Ser Asp Leu Ile Lys Lys Val Thr Asn Tyr Leu Val  
 645 650 655

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 Asp Gly Asn Gly Arg Phe Val Phe Thr Asp Ile Thr Leu Pro Asn Ile  
 660 665 670

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 2064  
 Ala Glu Gln Tyr Thr His Gln Asp Glu Ile Tyr Glu Gln Val His Ser  
 675 680 685

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 2112  
 Lys Gly Leu Tyr Val Pro Glu Ser Arg Ser Ile Leu Leu His Gly Pro  
 690 695 700

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2160

Ser Lys Gly Val Glu Leu Arg Asn Asp Ser Glu Gly Phe Ile His Glu

705

710

715

720

ttt gga cat gct gtg gat gat tat gct gga tat cta tta gat aag aac

2208

Phe Gly His Ala Val Asp Asp Tyr Ala Gly Tyr Leu Leu Asp Lys Asn

725

730

735

caa tct gat tta gtt aca aat tct aaa aaa ttc att gat att ttt aag

2256

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745

750

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2304

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755

760

765

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2352

Phe Phe Ala Glu Ala Phe Arg Leu Met His Ser Thr Asp His Ala Glu

770

775

780

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2400

Arg Leu Lys Val Gln Lys Asn Ala Pro Lys Thr Phe Gln Phe Ile Asn

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790

795

800

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2430

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805

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Gly Ala Gly Gly His Gly Asp Val Gly Met His Val Lys Glu Lys Glu  
 35 40 45

Lys Asn Lys Asp Glu Asn Lys Arg Lys Asp Glu Glu Arg Asn Lys Thr  
 50 55 60

Gln Glu Glu His Leu Lys Glu Ile Met Lys His Ile Val Lys Ile Glu  
 65 70 75 80

Val Lys Gly Glu Glu Ala Val Lys Lys Glu Ala Ala Glu Lys Leu Leu  
 85 90 95

Glu Lys Val Pro Ser Asp Val Leu Glu Met Tyr Lys Ala Ile Gly Gly  
 100 105 110

Lys Ile Tyr Ile Val Asp Gly Asp Ile Thr Lys His Ile Ser Leu Glu  
 115 120 125

Ala Leu Ser Glu Asp Lys Lys Lys Ile Lys Asp Ile Tyr Gly Lys Asp  
 130 135 140

Ala Leu Leu His Glu His Tyr Val Tyr Ala Lys Glu Gly Tyr Glu Pro  
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Val Leu Val Ile Gln Ser Ser Glu Asp Tyr Val Glu Asn Thr Glu Lys  
 165 170 175  
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 195 200 205  
 Thr Ile Lys Asn Ala Ser Asp Ser Asp Gly Gln Asp Leu Leu Phe Thr  
 210 215 220  
 Asn Gln Leu Lys Glu His Pro Thr Asp Phe Ser Val Glu Phe Leu Glu  
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 260 265 270  
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 275 280 285  
 Leu Glu Glu Leu Lys Asp Gln Arg Met Leu Ser Arg Tyr Glu Lys Trp  
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Lys Arg Ile Gln Ile Asp Ser Ser Asp Phe Leu Ser Thr Glu Glu Lys  
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Glu Phe Leu Lys Lys Leu Gln Ile Asp Ile Arg Asp Ser Leu Ser Glu  
 370 375 380

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Leu Ser Glu Lys Glu Lys Glu Phe Leu Lys Lys Leu Lys Leu Asp Ile  
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Gly Tyr Leu Glu Asn Gly Lys Leu Ile Leu Gln Arg Asn Ile Gly Leu  
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Arg Ile Asp Ala Lys Val Val Pro Lys Ser Lys Ile Asp Thr Lys Ile  
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595 600 605

Leu Pro Lys Tyr Thr Lys Leu Ile Thr Phe Asn Val His Asn Arg Tyr  
610 615 620

Ala Ser Asn Ile Val Glu Ser Ala Tyr Leu Ile Leu Asn Glu Trp Lys  
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Asn Asn Ile Gln Ser Asp Leu Ile Lys Lys Val Thr Asn Tyr Leu Val  
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Asp Gly Asn Gly Arg Phe Val Phe Thr Asp Ile Thr Leu Pro Asn Ile  
660 665 670

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675 680 685

Lys Gly Leu Tyr Val Pro Glu Ser Arg Ser Ile Leu Leu His Gly Pro  
690 695 700

Ser Lys Gly Val Glu Leu Arg Asn Asp Ser Glu Gly Phe Ile His Glu  
705 710 715 720

Phe Gly His Ala Val Asp Asp Tyr Ala Gly Tyr Leu Leu Asp Lys Asn  
725 730 735

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Glu Glu Gly Ser Asn Leu Thr Ser Tyr Gly Arg Thr Asn Glu Ala Glu  
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Phe Phe Ala Glu Ala Phe Arg Leu Met His Ser Thr Asp His Ala Glu  
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                   96

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20                                  25                                  30

cag gag aac cgg tta tta aat gaa tca gaa tca agt tcc cag ggg tta  
                   144

Gln Glu Asn Arg Leu Leu Asn Glu Ser Glu Ser Ser Ser Gln Gly Leu

35

40

45

cta gga tac tat ttt agt gat ttg aat ttt caa gca ccc atg gtg gtt  
192

Leu Gly Tyr Tyr Phe Ser Asp Leu Asn Phe Gln Ala Pro Met Val Val

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60

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240

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75

80

aat att cca tcg gaa aac caa tat ttt caa tct gct att tgg tca gga  
288

Asn Ile Pro Ser Glu Asn Gln Tyr Phe Gln Ser Ala Ile Trp Ser Gly

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90

95

ttt atc aaa gtt aag aag agt gat gaa tat aca ttt gct act tcc gct  
336

Phe Ile Lys Val Lys Lys Ser Asp Glu Tyr Thr Phe Ala Thr Ser Ala

100

105

110

gat aat cat gta aca atg tgg gta gat gac caa gaa gtg att aat aaa  
384

Asp Asn His Val Thr Met Trp Val Asp Asp Gln Glu Val Ile Asn Lys

115

120

125

gct tct aat tct aac aaa atc aga tta gaa aaa gga aga tta tat caa  
432

Ala Ser Asn Ser Asn Lys Ile Arg Leu Glu Lys Gly Arg Leu Tyr Gln

130

135

140

ata aaa att caa tat caa cga gaa aat cct act gaa aaa gga ttg gat  
480

Ile Lys Ile Gln Tyr Gln Arg Glu Asn Pro Thr Glu Lys Gly Leu Asp

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                165                170                175

agt gat aac tta caa ttg cca gaa tta aaa caa aaa tct tcg aac tca
576
Ser Asp Asn Leu Gln Leu Pro Glu Leu Lys Gln Lys Ser Ser Asn Ser

                180                185                190

aga aaa aag cga agt aca agt gct gga cct acg gtt cca gac cgt gac
624
Arg Lys Lys Arg Ser Thr Ser Ala Gly Pro Thr Val Pro Asp Arg Asp

                195                200                205

aat gat gga atc cct gat tca tta gag gta gaa gga tat acg gtt gat
672
Asn Asp Gly Ile Pro Asp Ser Leu Glu Val Glu Gly Tyr Thr Val Asp

                210                215                220

gtc aaa aat aaa aga act ttt ctt tca cca tgg att tct aat att cat
720
Val Lys Asn Lys Arg Thr Phe Leu Ser Pro Trp Ile Ser Asn Ile His

225                230                235                240

gaa aag aaa gga tta acc aaa tat aaa tca tct cct gaa aaa tgg agc
768
Glu Lys Lys Gly Leu Thr Lys Tyr Lys Ser Ser Pro Glu Lys Trp Ser

                245                250                255

acg gct tct gat ccg tac agt gat ttc gaa aag gtt aca gga cgg att
816

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 Asp Lys Asn Val Ser Pro Glu Ala Arg His Pro Leu Val Ala Ala Tyr  
 275 280 285

ccg att gta cat gta gat atg gag aat att att ctc tca aaa aat gag  
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 Pro Ile Val His Val Asp Met Glu Asn Ile Ile Leu Ser Lys Asn Glu  
 290 295 300

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 325 330 335

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 1056  
 Glu Val His Ala Asn Thr Ser Thr Ser Arg Thr His Thr Ser Glu Val  
 340 345 350

cat gga aat gca gaa gtg cat gcg gtc gca att gat cat tca cta tct  
 1104  
 His Gly Asn Ala Glu Val His Ala Val Ala Ile Asp His Ser Leu Ser  
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cta gca ggg gaa aga act tgg gct gaa aca atg ggt tta aat acc gct

1152

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370

375

380

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1200

Asp Thr Ala Arg Leu Asn Ala Asn Ile Arg Tyr Val Asn Thr Gly Thr

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gct cca atc tac aac gtg tta cca acg act tcg tta gtg tta gga aaa

1248

Ala Pro Ile Tyr Asn Val Leu Pro Thr Thr Ser Leu Val Leu Gly Lys

405

410

415

aat caa aca ctc gcg aca att aaa gct aag gaa aac caa tta agt caa

1296

Asn Gln Thr Leu Ala Thr Ile Lys Ala Lys Glu Asn Gln Leu Ser Gln

420

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430

ata ctt gca cct aat aat tat tat cct tct aaa aac ttg gcg cca atc

1344

Ile Leu Ala Pro Asn Asn Tyr Tyr Pro Ser Lys Asn Leu Ala Pro Ile

435

440

445

gca tta aat gca caa gac gat ttc agt tct act cca att aca atg aat

1392

Ala Leu Asn Ala Gln Asp Asp Phe Ser Ser Thr Pro Ile Thr Met Asn

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460

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1440

Tyr Asn Gln Phe Leu Glu Leu Glu Lys Thr Lys Gln Leu Arg Leu Asp

465

470

475

480

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1488

Thr Asp Gln Val Tyr Gly Asn Ile Ala Thr Tyr Asn Phe Glu Asn Gly

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490

495

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1536

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500

505

510

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1584

Ile Gln Glu Thr Thr Ala Arg Ile Ile Phe Asn Gly Lys Asp Leu Asn

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1632

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530

535

540

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1680

Thr Thr Lys Pro Asp Met Thr Leu Lys Glu Ala Leu Lys Ile Ala Phe

545

550

555

560

gga ttt aac gaa ccg aat gga aac tta caa tat caa ggg aaa gac ata  
1728

Gly Phe Asn Glu Pro Asn Gly Asn Leu Gln Tyr Gln Gly Lys Asp Ile

565

570

575

acc gaa ttt gat ttt aat ttc gat caa caa aca tct caa aat atc aag  
1776

Thr Glu Phe Asp Phe Asn Phe Asp Gln Gln Thr Ser Gln Asn Ile Lys

580

585

590

aat cag tta gcg gaa tta aac gca act aac ata tat act gta tta gat  
1824

Asn Gln Leu Ala Glu Leu Asn Ala Thr Asn Ile Tyr Thr Val Leu Asp

595

600

605

aaa atc aaa tta aat gca aaa atg aat att tta ata aga gat aaa cgt  
1872

Lys Ile Lys Leu Asn Ala Lys Met Asn Ile Leu Ile Arg Asp Lys Arg

610

615

620

ttt cat tat gat aga aat aac ata gca gtt ggg gcg gat gag tca gta  
1920

Phe His Tyr Asp Arg Asn Asn Ile Ala Val Gly Ala Asp Glu Ser Val

625

630

635

640

gtt aag gag gct cat aga gaa gta att aat tcg tca aca gag gga tta  
1968

Val Lys Glu Ala His Arg Glu Val Ile Asn Ser Ser Thr Glu Gly Leu

645

650

655

ttg tta aat att gat aag gat ata aga aaa ata tta tca ggt tat att  
2016

Leu Leu Asn Ile Asp Lys Asp Ile Arg Lys Ile Leu Ser Gly Tyr Ile

660

665

670

gta gaa att gaa gat act gaa ggg ctt aaa gaa gtt ata aat gac aga  
2064

Val Glu Ile Glu Asp Thr Glu Gly Leu Lys Glu Val Ile Asn Asp Arg

675

680

685

tat gat atg ttg aat att tct agt tta cgg caa gat gga aaa aca ttt  
2112

Tyr Asp Met Leu Asn Ile Ser Ser Leu Arg Gln Asp Gly Lys Thr Phe

690

695

700

ata gat ttt aaa aaa tat aat gat aaa tta ccg tta tat ata agt aat  
2160

Ile Asp Phe Lys Lys Tyr Asn Asp Lys Leu Pro Leu Tyr Ile Ser Asn

705

710

715

720

ccc aat tat aag gta aat gta tat gct gtt act aaa gaa aac act att  
2208

Pro Asn Tyr Lys Val Asn Val Tyr Ala Val Thr Lys Glu Asn Thr Ile

725

730

735

att aat cct agt gag aat ggg gat act agt acc aac ggg atc aag aaa  
2256

Ile Asn Pro Ser Glu Asn Gly Asp Thr Ser Thr Asn Gly Ile Lys Lys

740

745

750

att tta atc ttt tct aaa aaa ggc tat gag ata gga taa  
2295

Ile Leu Ile Phe Ser Lys Lys Gly Tyr Glu Ile Gly

755

760

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Gln Glu Asn Arg Leu Leu Asn Glu Ser Glu Ser Ser Ser Gln Gly Leu  
35 40 45

Leu Gly Tyr Tyr Phe Ser Asp Leu Asn Phe Gln Ala Pro Met Val Val  
 50 55 60

Thr Ser Ser Thr Thr Gly Asp Leu Ser Ile Pro Ser Ser Glu Leu Glu  
 65 70 75 80

Asn Ile Pro Ser Glu Asn Gln Tyr Phe Gln Ser Ala Ile Trp Ser Gly  
 85 90 95

Phe Ile Lys Val Lys Lys Ser Asp Glu Tyr Thr Phe Ala Thr Ser Ala  
 100 105 110

Asp Asn His Val Thr Met Trp Val Asp Asp Gln Glu Val Ile Asn Lys  
 115 120 125

Ala Ser Asn Ser Asn Lys Ile Arg Leu Glu Lys Gly Arg Leu Tyr Gln  
 130 135 140

Ile Lys Ile Gln Tyr Gln Arg Glu Asn Pro Thr Glu Lys Gly Leu Asp  
 145 150 155 160

Phe Lys Leu Tyr Trp Thr Asp Ser Gln Asn Lys Lys Glu Val Ile Ser  
 165 170 175

Ser Asp Asn Leu Gln Leu Pro Glu Leu Lys Gln Lys Ser Ser Asn Ser  
 180 185 190

Arg Lys Lys Arg Ser Thr Ser Ala Gly Pro Thr Val Pro Asp Arg Asp  
 195 200 205

Asn Asp Gly Ile Pro Asp Ser Leu Glu Val Glu Gly Tyr Thr Val Asp  
 210 215 220

Val Lys Asn Lys Arg Thr Phe Leu Ser Pro Trp Ile Ser Asn Ile His  
 225 230 235 240

Glu Lys Lys Gly Leu Thr Lys Tyr Lys Ser Ser Pro Glu Lys Trp Ser  
 245 250 255

Thr Ala Ser Asp Pro Tyr Ser Asp Phe Glu Lys Val Thr Gly Arg Ile  
 260 265 270

Asp Lys Asn Val Ser Pro Glu Ala Arg His Pro Leu Val Ala Ala Tyr  
 275 280 285

Pro Ile Val His Val Asp Met Glu Asn Ile Ile Leu Ser Lys Asn Glu  
 290 295 300

Asp Gln Ser Thr Gln Asn Thr Asp Ser Glu Thr Arg Thr Ile Ser Lys  
 305 310 315 320

Asn Thr Ser Thr Ser Arg Thr His Thr Ser Glu Val His Gly Asn Ala  
 325 330 335

Glu Val His Ala Asn Thr Ser Thr Ser Arg Thr His Thr Ser Glu Val  
 340 345 350

His Gly Asn Ala Glu Val His Ala Val Ala Ile Asp His Ser Leu Ser  
 355 360 365

Leu Ala Gly Glu Arg Thr Trp Ala Glu Thr Met Gly Leu Asn Thr Ala  
 370 375 380

Asp Thr Ala Arg Leu Asn Ala Asn Ile Arg Tyr Val Asn Thr Gly Thr  
 385 390 395 400

Ala Pro Ile Tyr Asn Val Leu Pro Thr Thr Ser Leu Val Leu Gly Lys  
 405 410 415

Asn Gln Thr Leu Ala Thr Ile Lys Ala Lys Glu Asn Gln Leu Ser Gln  
 420 425 430

Ile Leu Ala Pro Asn Asn Tyr Tyr Pro Ser Lys Asn Leu Ala Pro Ile  
 435 440 445

Ala Leu Asn Ala Gln Asp Asp Phe Ser Ser Thr Pro Ile Thr Met Asn  
 450 455 460

Tyr Asn Gln Phe Leu Glu Leu Glu Lys Thr Lys Gln Leu Arg Leu Asp  
 465 470 475 480

Thr Asp Gln Val Tyr Gly Asn Ile Ala Thr Tyr Asn Phe Glu Asn Gly  
 485 490 495

Arg Val Arg Val Asp Thr Gly Ser Asn Trp Ser Glu Val Leu Pro Gln  
 500 505 510

Ile Gln Glu Thr Thr Ala Arg Ile Ile Phe Asn Gly Lys Asp Leu Asn  
 515 520 525

Leu Val Glu Arg Arg Ile Ala Ala Val Asn Pro Ser Asp Pro Leu Glu  
 530 535 540

Thr Thr Lys Pro Asp Met Thr Leu Lys Glu Ala Leu Lys Ile Ala Phe  
 545 550 555 560

Gly Phe Asn Glu Pro Asn Gly Asn Leu Gln Tyr Gln Gly Lys Asp Ile  
 565 570 575

Thr Glu Phe Asp Phe Asn Phe Asp Gln Gln Thr Ser Gln Asn Ile Lys  
 580 585 590

Asn Gln Leu Ala Glu Leu Asn Ala Thr Asn Ile Tyr Thr Val Leu Asp  
 595 600 605

Lys Ile Lys Leu Asn Ala Lys Met Asn Ile Leu Ile Arg Asp Lys Arg  
 610 615 620



Phe His Tyr Asp Arg Asn Asn Ile Ala Val Gly Ala Asp Glu Ser Val  
625 630 635 640

Val Lys Glu Ala His Arg Glu Val Ile Asn Ser Ser Thr Glu Gly Leu  
645 650 655

Leu Leu Asn Ile Asp Lys Asp Ile Arg Lys Ile Leu Ser Gly Tyr Ile  
660 665 670

Val Glu Ile Glu Asp Thr Glu Gly Leu Lys Glu Val Ile Asn Asp Arg  
675 680 685

Tyr Asp Met Leu Asn Ile Ser Ser Leu Arg Gln Asp Gly Lys Thr Phe  
690 695 700

Ile Asp Phe Lys Lys Tyr Asn Asp Lys Leu Pro Leu Tyr Ile Ser Asn  
705 710 715 720

Pro Asn Tyr Lys Val Asn Val Tyr Ala Val Thr Lys Glu Asn Thr Ile  
725 730 735

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